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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/068,146	02/06/2002	Akihiko Kuriyama	70840/56923	7505

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EXAMINER

PRITCHETT, JOSHUA L

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 02/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/068,146

Applicant(s)

KURIYAMA ET AL.

Examiner

Joshua L Pritchett

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Art Unit: 2872

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 10-11 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Driscoll (US 6,426,774).

Regarding claim 1, Driscoll discloses an imaging device comprising a convex mirror (810) for reflecting incident light representing an object, the convex mirror having a shape of solid of revolution (Fig. 8A). Driscoll further discloses an optical member (805) for guiding incident light toward the convex mirror and guiding the reflected light toward the imaging mechanism including an imaging lens (square box) and an imaging section (rectangular box located at the image plane). Driscoll further discloses the optical member being in close contact with the convex mirror (Fig. 8A).

Regarding claim 2, Driscoll discloses the optical member having a concave portion, which is in close contact with the convex mirror so as to cover the convex mirror (Fig. 8A).

Art Unit: 2872

Regarding claim 10, Driscoll discloses the optical member having an outer circumferential surface formed so as to cause incident light to be incident thereon in a direction normal to the outer circumferential surface (Fig. 8A). The light by incident the optical member from any angle within the field of vision as defined in Figure 1.

Regarding claim 11, the outer surface at the center portion of the optical member (805) has been taken as a reflected light releasing face.

Regarding claim 13, Driscoll discloses an optical member in close contact with the convex mirror so that the optical member covers the convex mirror (Fig. 8A). Driscoll further discloses attaching an imaging mechanism so that the reflected light is incident on the imaging mechanism (Fig. 8A).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Driscoll in view of Hawryluk (US 5,745,286).

Art Unit: 2872

Regarding claims 3-5, Driscoll teaches the invention as claimed including the use of the interior portion of the concave portion as the convex mirror but lacks reference to the mirror being a thin film. Hawryluk teaches the use of thin film aluminum as a thin film reflective layer used to create a mirror (col. 3 lines 18-19). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the thin film aluminum taught by Hawryluk as the convex mirror in the Driscoll invention for the purpose of extending the application of the imaging system into the ultraviolet region of the light spectrum.

Regarding claim 6, Driscoll teaches the invention as claimed but lacks reference to the use of vapor-deposition, sputtering or plating as a means of creating the mirror. Hawryluk teaches the use of sputtering as a means of creating a thin film aluminum mirror (col. 1 lines 65-67). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to create the Driscoll mirror by using the sputter technique taught by Hawryluk for the purpose of achieving a smooth reflective surface and therefore record better images with less light dispersion.

Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Driscoll.

Regarding claim 8, Driscoll discloses the imaging mechanism including a lens (230) for converging the reflected light, and an imaging section (250) for taking an image represented by the reflected light converged by the lens. Driscoll does not teach the lens being in close contact with the optical member, but it has been held that it is within the ability of one ordinarily skilled in the art to make a component in close contact with another component. It would therefore also

Art Unit: 2872

be within the skill of one of ordinary skill in the art to have the lens be in close contact with the optical member.

Regarding claim 9, Driscoll teaches a lens (240) made of SFL6. It would have been obvious to make the other lens of the Driscoll invention out of the same material. SFL6 is known to have a refractive index of 1.8 (Braat US 4,986,641). Driscoll further teaches the optical member being made of a transparent material. SiO₂ is a commonly known and used transparent material used in optics. The refractive index of SiO₂ is well known to be 1.48. It would therefore have been obvious and within the ability of one ordinarily skilled in the art to make the optical member of Driscoll have a refractive index smaller than the refractive index of the lens of Driscoll.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Driscoll in view of Tsunashima (US 6,169,637).

Driscoll teaches the invention as claimed but lacks the releasing face having a focal point. Tsunashima teaches a releasing face (20) having a focal point (between elements 25 and 14 in Fig. 1). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the releasing face of the Driscoll invention have the light focusing ability taught by Tsunashima for the purpose of creating a more compact lens assembly because the light beams would require least physical distance to converge onto the imaging plane.

Art Unit: 2872

Allowable Subject Matter

Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 7 is allowable over the prior art of record because the Driscoll reference does not include an integral converging lens and to make the converging lens of the Driscoll reference integral would require the removal of the Driscoll correcting lens, which would make the Driscoll invention inoperable.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Braat (US 4,986,641) teaches the refractive index of SFL6.

Driscoll (US 6,424,377) teaches a different orientation of the components to create an imaging system.

Driscoll (US 6,480,229) teaches an imaging system with two imaging planes.

Art Unit: 2872

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua L Pritchett whose telephone number is 703-305-7917.

The examiner can normally be reached on Monday - Friday 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on 703-308-1687. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

JLP
February 10, 2003


James Phan
Primary Examiner